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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,997	05/19/2006	Rudolf Kral	2003P13742WOUS	7620
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EXAMINER				
JUETTNER, ANDREW MARK				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/579,997

Applicant(s)

KRAL ET AL.

Examiner

Andrew M. Juettner

Art Unit

4124

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-85/86)
- Paper No(s)/Mail Date 5/19/2006
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. Claims 9- 20 are objected to because of the following informalities:
 - I. Claims 9-20 are objected to because independent claims 9 and 19 and therefore all dependent claims recite the term "funnel shaped side walls." However, that is not what is described in the specification. The specification discloses side walls in a funnel shaped configuration.
 - II. Claims 12-17 are objected to because the term "funnel-shaped bottom area" is improperly used to describe the bottom area where the side walls are in a funnel-shaped configuration. There is no antecedent basis for the term "funnel-shaped bottom area."
 - III. Claims 12-16 are objected to because the term "encircling wall top area" is improperly used to describe the encircling wall located in the top area. There is no antecedent basis for the term "encircling wall top area."Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 9-14 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,755,188 to Phelps (Phelps).

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In Reference to Claim 9

Phelps teaches:

A steam generator (10), comprising:

a combustion chamber (12, 14, 16) having funnel shaped side walls (see fig. 1, lower zone 12), a bottom area (lower zone 12), and a top area (upper zone 16);
a plurality of steam generator pipes (18, 20), at least one of the pipes having a diameter at the bottom area that is different than a diameter at the top area (see fig. 2; column 2, lines 23-27);

an encircling wall arranged between the bottom and top areas and above the funnel shaped side walls formed from the plurality of steam generator pipes (upper zone 16, see fig. 1); and

a flow medium that flows through the steam generator pipes (water is the fluid flow in the water-wall tubes; column 3, line 3).

In Reference to Claim 10

Phelps teaches:

The steam generator as claimed in claim 9 (see rejection of claim 9 above), wherein a majority of steam generator pipes have a diameter at the bottom area that is different than a diameter at the top area (fluid flow paths are connected one-to-one with lower tube diameter less than upper tube; Column 2, lines 22-27; see fig. 2).

In Reference to Claim 11

Phelps teaches:

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The steam generator as claimed in claim 10 (see rejection of claim 10 above), wherein all of the steam generator pipes have a diameter at the bottom area that is different than a diameter at the top area (fluid flow paths are connected one-to-one with lower tube diameter less than upper tube; Column 2, lines 22-27; see fig. 2).

In Reference to Claim 12

Phelps teaches:

The steam generator as claimed in claim 11 (see rejection of claim 11 above), wherein a plurality of steam generator pipes have a smaller pipe diameter in the funnel-shaped bottom area than in the encircling wall top area (diameter of tubes in lower zone 12, where funnel-shaped side walls are, is less than diameter of tubes in upper zone 16; Column 2, lines 23-27; see fig. 1).

In Reference to Claim 13

Phelps teaches:

The steam generator as claimed in claim 12 (see rejection of claim 12 above), wherein adjacent steam generator pipes are connected via fins (membranes 60), and a plurality of the fins in the encircling wall top area have a different width than in the funnel-shaped bottom area (see fig. 2; membranes 60 in lower zone 12 are narrower than in upper zone 16).

In Reference to Claim 14

Phelps teaches:

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The steam generator as claimed in claim 13 (see rejection of claim 13 above), wherein a plurality of fins (membranes 60) in the funnel-shaped bottom area have a narrower width than in the encircling wall top area (see fig. 2; membranes 60 in lower zone 12 are narrower than in upper zone 16).

In Reference to Claim 20

Phelps teaches:

The steam generator as claimed in claim 9 (see rejection of claim 9 above), wherein the combustion chamber side walls and the encircling wall form a gas tight boundary for the ducting of a hot combustion gas (see figs. 2 and 3; column 2, lines 27-30; column 3, lines 45-48).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Phelps.

In Reference to Claim 15

Phelps teaches the steam generator as claimed in claim 14 (see rejection of claim 14 above), but does not explicitly disclose wherein the diameter of the plurality of steam generator pipes in the funnel-shaped bottom area is reduced by 5 to 15 percent relative to the pipe diameter in the encircling wall top area. Phelps discloses that the pipe diameter in the bottom area is less than the pipe diameter in the upper area (see fig. 2; membranes 60 in lower zone 12 are narrower than in upper zone 16), but does not disclose a specific reduction percent. One having ordinary skill in the art at the time of the invention would have known to have a smaller diameter in the bottom area than in the top area in order to reduce the overall pressure drop in the system. The range of the percent reduction in the pipe diameter recited in claim 15 would have been obvious to one having ordinary skill in the art at the time of the invention because the optimum or workable range could have been discovered through routine experimentation.

In Reference to Claim 16

Phelps teaches the steam generator as claimed in claim 15 (see rejection of claim 15 above), but does not explicitly disclose wherein the width of a plurality of fins in the funnel-shaped bottom area is reduced by 30 to 70 percent relative to the fin width in the encircling wall top area. Phelps discloses the reduction in the fin width from the

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upper area to the lower area (see fig. 2), but not a specific range. However, the range of percent reduction in the fin width recited in claim 16 would have been obvious to one having ordinary skill in the art at the time of the invention because the optimum or workable range could have been discovered through routine experimentation.

7. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Phelps as applied to claims 9-16 above, and further in view of US Patent 5,226,936 to Garkawe (Garkawe).

In Reference to Claim 17

Phelps teaches the steam generator as claimed in claim 16 (see rejection of claim 16 above), but fails to disclose wherein the plurality of steam generator pipes in the funnel-shaped bottom area are arranged substantially parallel to the direction of inclination of the funnel-shaped side walls.

Garkawe discloses heat exchange pipes (46) with smaller lower diameters than upper diameters (Column 5, lines 23-30) that are located in a funnel-shaped area (see fig. 4) arranged parallel to the direction of the inclination of the funnel-shaped walls (the entire funnel-shaped hopper is formed by tubes and fins; column 5, lines 13-19).

It would have been obvious to one having ordinary skill in the art at the time of the invention to substitute the tube arrangement of Garkawe for the tube arrangement in Phelps in the funnel-shaped region in order to reduce heat losses and increase heat recovery area as taught by Garkawe (column 5, lines 38-41).

In Reference to Claim 18

Phelps as modified by Garkawe teaches:

The steam generator as claimed in claim 17 (see rejection of claim 17 above), wherein the steam generator is a continuous steam generator (Phelps column 3, lines 5-7).

8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Phelps in view of US Patent 5,701,850 to Kohler et al. (Kohler).

Phelps teaches:

A combustion chamber for the generation of steam (10), comprising:
a top area (upper zone 16) and a bottom area (lower zone 12) where the bottom area is sized and configured for removal of accumulated ash (see fig. 1; funnel-shaped walls end in opening);
a lower portion having funnel shaped side walls arranged between the top and bottom areas (see fig. 1, lower zone 12);
a plurality of steam generator pipes (18, 20), at least one of the pipes having a diameter at the bottom area that is different than a diameter at the top area (see fig. 2; column 2, lines 23-27);
an encircling wall arranged between the bottom and top areas and above the funnel shaped side walls formed from the plurality of steam generator pipes (upper zone 16, see fig. 1); and
a flow medium that flows through the steam generator pipes that is heated (water is the fluid flow in the water-wall tubes; column 3, line 3).

Phelps does not explicitly disclose what material is combusted and therefore does not disclose a combustion chamber that combusts a fossil fuel for the generation of steam.

Kohler discloses a steam generator that combusts fossil fuels (abstract). It would have been obvious to one having ordinary skill in the art at the time of the invention to use fossil fuel as the combustion material as taught by Kohler in the furnace disclosed in Phelps in order to provide the heat need to produce steam.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gorzegno discloses a coal-fired generator with water-wall tubes that have a smaller diameter in lower area than in upper area in order to reduce the overall pressure drop. Seshamani discloses a cyclone separator with tube and fin walls that form a funnel shape. Wagner discloses a combustion steam generator with tube walls that funnel together in the bottom area. Rees discloses a heat exchanger that has tapered fins in between cooling tubes. Stevens discloses a furnace with tube walls with tube diameter larger in top area than in bottom area. Effert discloses a fossil burning steam generator with a funnel shaped bottom area.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW M. JUETTNER whose telephone number is (571)270-5053. The examiner can normally be reached on Monday through Friday 7:30am to 5pm Est..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Bomberg can be reached on (571) 272-4922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AMJ

/A. M. J./

Examiner, Art Unit 4124

/Thor S. Campbell/

Primary Examiner, Art Unit 3742